Introduction

Colstrip Electric Generating Units 3 and 4 are located near the town of Colstrip, Montana. A Certificate of Environmental Compatibility and Public Need was issued by the Board of Natural Resources and Conservation on July 22, 1976 and the Certificate was amended on June 1, 1979 allowing project sponsors to construct, operate, and maintain the plants and associated facilities. Unit 3 came on line in 1983 and Unit 4 began commercial operations in 1986. PPL Montana has assumed responsibilities for operating the facility.

Colstrip generating units operate with wet scrubber systems to remove fly ash and sulfur dioxide created when coal is burned to heat steam boilers. Fly ash is the ash from coal combustion that would be emitted with flue gas from the plant stacks if it were not captured in some manner. Most of the fly ash that would otherwise be emitted from the exhaust stacks is captured by a system of scrubbers that also remove sulfur dioxide from the flue gas. In the scrubbers, a stream of water is injected and ash is captured. Under the certificate the resulting ash slurry is collected, transported through a pipeline, and must be disposed of in permanent ash disposal ponds. At the ash disposal ponds, a system of sub-impoundments allows ash solids to settle from the slurry and clear water to be collected and transported back to the plants for reuse.

Coarser ash that falls to the bottom of boilers rather than moving up the exhaust stack is collected in bottom ash ponds near the plants. The bottom ash is dried and transported to the permanent ash disposal ponds by truck. Figure 1 shows the location of various ponds at the plant site associated with Colstrip generating units 1 through 4.

In the process of transporting slurry and being reused, water dissolves minerals from the ash and becomes mineralized. The Certificate required that the ash disposal system be operated as a closed loop system and required that a system of monitoring wells be installed. If leakage from the ponds was detected in the monitoring wells then a system of recovery wells was to be operated.

Ponds where leakage has been detected and which are related to this amendment process include the 3-4 ash disposal pond (effluent holding pond or EHP), the 3-4 bottom ash ponds, the A/B ash disposal ponds, and a now decommissioned set of brine disposal ponds. Water quality from these ponds is characterized in Appendix A. Recovery wells and interception systems have been installed to capture this leakage. Water from the recovery systems eventually makes its way to permanent ash disposal ponds.

To partially address continued seepage and leaks from the 3-4 ash disposal pond PPL has recently begun to operate an innovative paste system. In contrast to the system of settling ponds used through 2003, the paste plant uses a centrifugal process to separate ash from clear water that is circulated back to the plant. If successful, the paste plant would significantly reduce the need for extensive settling sub-impoundments at the 3-4 ash disposal pond. Future sources of seeps and leaks should be substantially reduced by reducing sub-impoundment area, reducing water depth (and therefore head driving groundwater flow from the ponds), and reducing permeability of the sides and bottom of the pond. Note that the ash paste is less permeable than some of the native materials exposed in the bottom of the pond.

In addition to startup of the paste plant, PPL has begun to use forced evaporators to speed the rate at which standing water in the 3-4 pond is eliminated. Currently, PPL plans to reduce water inventory at the 3&4 EHP by 500 million gallons. PPL is in the first year of that reduction plan, and has already reduced the inventory by 100 million gallons. If the water from the groundwater collection systems could be used as proposed in this amendment for offsite highway reconstruction, this would help the water inventory reduction by about 20% in 2004.

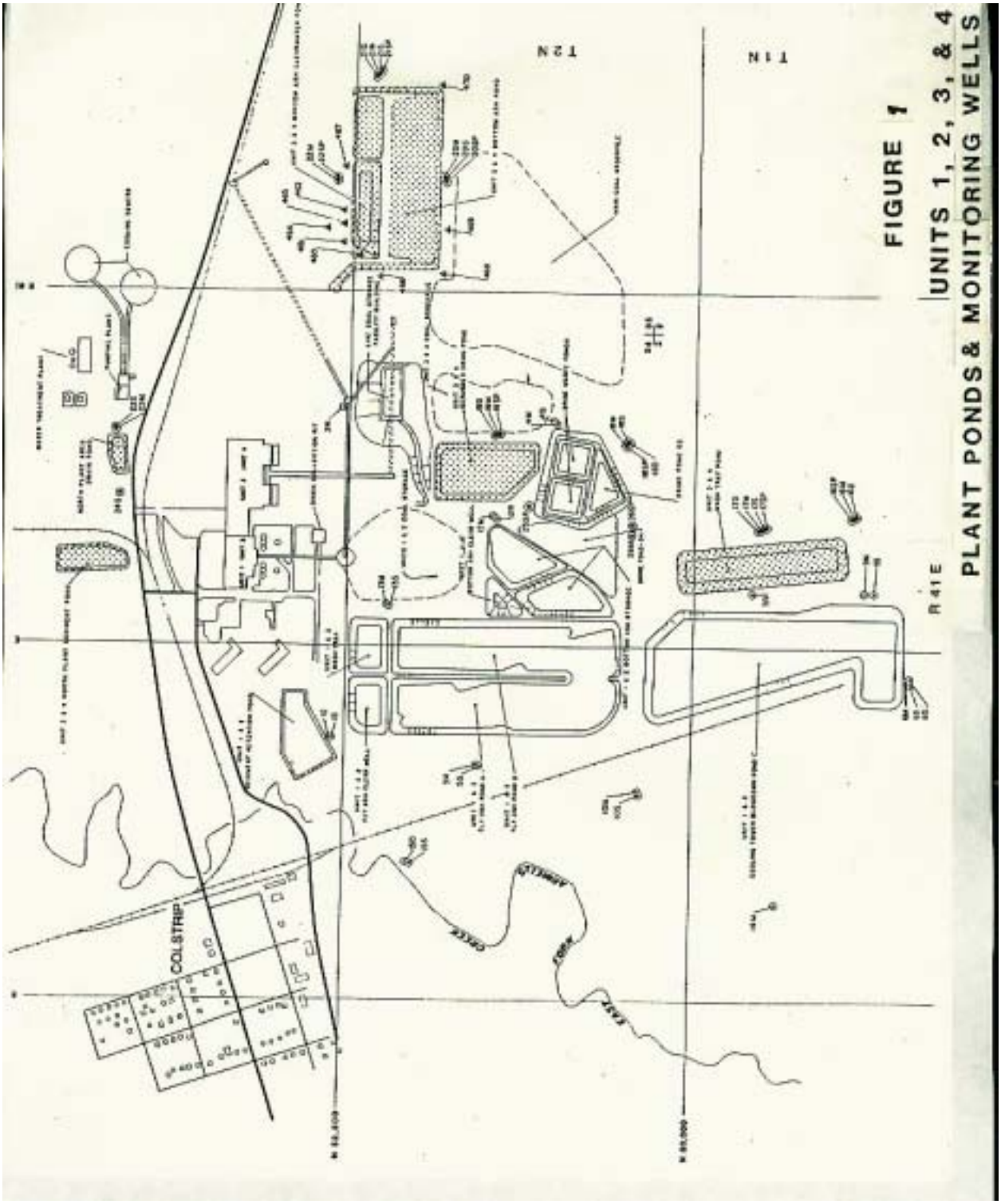


FIGURE 1
UNITS 1, 2, 3, & 4
PLANT PONDS & MONITORING WELLS
T2N
T1N
R41E
COLSTRIP
CREEK
FORK
EAST

Amendment Procedures
On March 4, 2004, PPL notified the Department of Environmental Quality (Department) that it was seeking an amendment to the Certificate to allow use of water from the Colstrip plant site groundwater collection systems for dust control and compaction on the Montana DOT Colstrip South Highway 39 Project. PPL later published the required notice that it was seeking an amendment to its Certificate on March 25, 2004. This proposal would result in a change of the location where certain groundwater collection systems would discharge during the 2004 highway construction season.

After the Department receives a notice of an amendment to a certificate, including notice to all active parties to the original proceeding, it has 30 days to determine whether the proposed change in the facility would result in a material increase in any environmental impact of the facility or a substantial change in the location of all or a portion of the facility as set forth in the certificate. In those cases in which the department determines that the proposed change in the facility would not result in a material increase in any environmental impact or would not be a substantial change in the location of all or a portion of the facility, the department shall automatically grant the amendment either as applied for or upon terms or conditions that the department considers appropriate. If the Department determines that the proposed change would result in a material increase in any environmental impact of the facility or a substantial change in the location of all or a portion of the facility, the department would grant, deny, or modify the amendment with conditions it considers appropriate.

A person aggrieved by the final decision of the department on an application for amendment of a certificate may within 15 days appeal the decision to the Board of Environmental Review under contested case procedures. If a hearing is requested as part of an appeal, the party requesting the hearing has the burden of showing by clear and convincing evidence that the department's determination is not reasonable. Following the hearing, the Board would grant, deny, or modify the amendment with conditions it considers appropriate.

This ~~draft~~ final environmental assessment provides supplemental analysis of impacts examined in the draft and final environmental impact statement for the Colstrip Units 3 and 4 (DNRC 1974 and 1975). It also contains the analysis on which the Department makes its determination whether there would be a material increase in any environmental impact or a substantial change in the location of all or a portion of the facility. The Department is using the environmental assessment format because the short timeframe required for the determination does not allow sufficient time for preparation of a full environmental impact statement. This approach is provided for in ARM 17.4.607(2)(e). The following checklist environmental assessment considers only the effects that the proposed change or addition to the facility contained in the notice for the certificate amendment may produce.

CHECKLIST DRAFT ENVIRONMENTAL ASSESSMENT

COMPANY NAME: PPL Montana Project: Amendment 2 Colstrip 3&4 MFSA Certificate
LOCATION: see figures 1, 2 and 3 County: Rosebud
PROPERTY OWNERSHIP: [ ] Federal [x] State [x] Private

TYPE AND PURPOSE OF ACTION: Use of water from selected Colstrip plant site groundwater collection systems for dust control, compaction, and pavement on the Montana Department of Transportation Colstrip South Highway 39 Reconstruction Project in 2004.

Proposed Plan:

Project Description

The Colstrip South Highway 39 Project is a Montana Department of Transportation (DOT) project that starts 2 miles south of Colstrip at mile marker 23 and continues south on State Highway #39 for 10 miles ending up at mile marker 13. (See figure 3. Project Map) The main goal of the project is to widen Highway 39 in order to safely handle the large amount of traffic to and from Lame Deer, Montana and Highway #212.

Oftedal Construction of Miles City, Montana is the main contractor with Prince Inc. of Forsyth, Montana subcontracted to do the paving. Entranco was the DOT'S consultant contracted to do the engineering design and environmental studies for this highway project.

Phase 1 of the project, removal of asphalt and initial dirt work started in July of 2003 and continued into November 2003 until colder weather shut the project down for the winter. During 2003 the contractor used water from a pond at the Western Energy Mine. The second phase of the project, final grade work, will begin in the spring of 2004, and should be completed by August of 2004.

Oftedal Construction, the main contractor on the project, would use water from PPL's groundwater collection system for compaction and dust control on the entire 10 mile length of roadwork. Once final grade is achieved, Prince would use some additional water to mix and apply a cement/road mix sealant to the surface of the road. Oftedal is estimating a total of 13 million gallons of water would be needed for phase 2 work in 2004.

Prince Inc., the paving contractor, has estimated the need for 3 million gallons of water to complete their phase of the project. The paving should start in June and finish in August of 2004. This would bring the total amount needed for this highway project to 16 million gallons.

Water Collection

The ground water collection systems that would be utilized for this project are in the area south and west of the power plants. Area 1 is the AB pond, which holds fly ash and bottom ash from units 1 & 2, and Area 2 is the 3 & 4 bottom ash ponds. The ground water collection system wells in Area 1 that would be utilized are 10M, 10S, B4, and B5. The groundwater collection system wells that would be utilized in Area 2 are 51S, 52S, 53S, and 54S. (Figure 2)

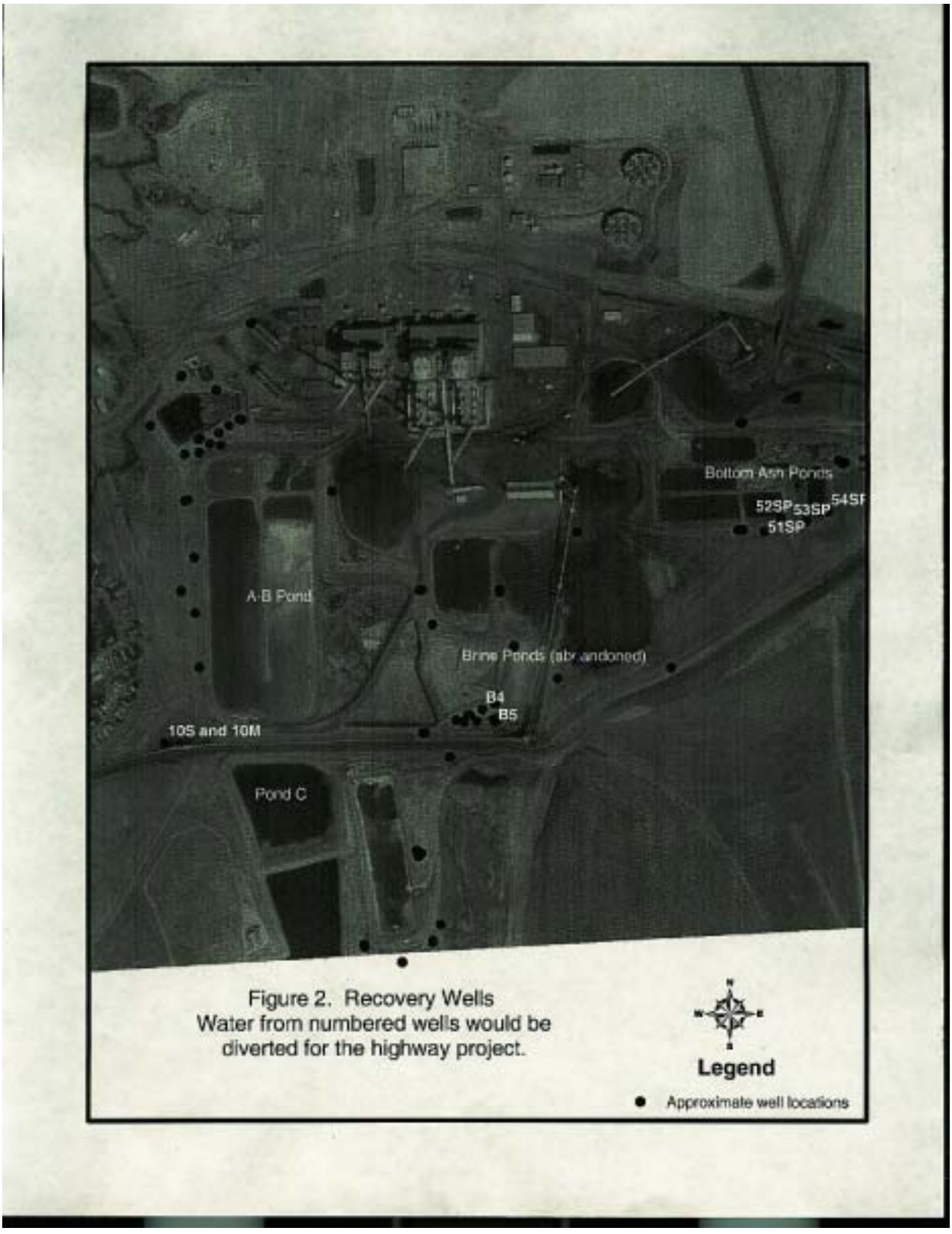


Figure 2. Recovery Wells
Water from numbered wells would be diverted for the highway project.

10M and 10S are shallow wells on the west side of the AB pond. Wells B4 and B5 are part of a system that collected water near the old brine ponds. These old brine ponds have been taken out of service and are located on the east side of the AB pond. 10M, 10S, B4, and B5 all have output lines that historically emptied into the AB pond.

The output lines from these 4 wells would be tied together at the southwest end of AB pond, and hooked to a 2-inch plastic line. This new line would run under the Western Energy haul road and dump into the northwest corner of Pond C (See Figure 2.) Pond C is a clay-lined pond that used to hold cooling tower blow down from Units 1&2. The north end would hold the highway project water, and the south end of Pond C now holds raw water used strictly for road watering and dust control.

The outputs of 51, 52, 53 and 54SP would be tied together in a 4 inch plastic line that would travel to the south, cross the Western Energy haul road, then move to the west until the line hits Pond C. This line would dump into the northeast corner of Pond C. Pond C has a maximum useable capacity of roughly 35 acre-feet.

To minimize any impact to the areas surrounding the highway project, PPL would maintain the conductivity level below 5,000 µmhos, and the boron level below 4.0 mg/l. If the water quality in Pond C should exceed these limits, PPL would use raw water make-up to bring the levels back to within limits. Raw water comes from the Yellowstone River via pipeline to Castle Rock Reservoir and thence to the generating plants.

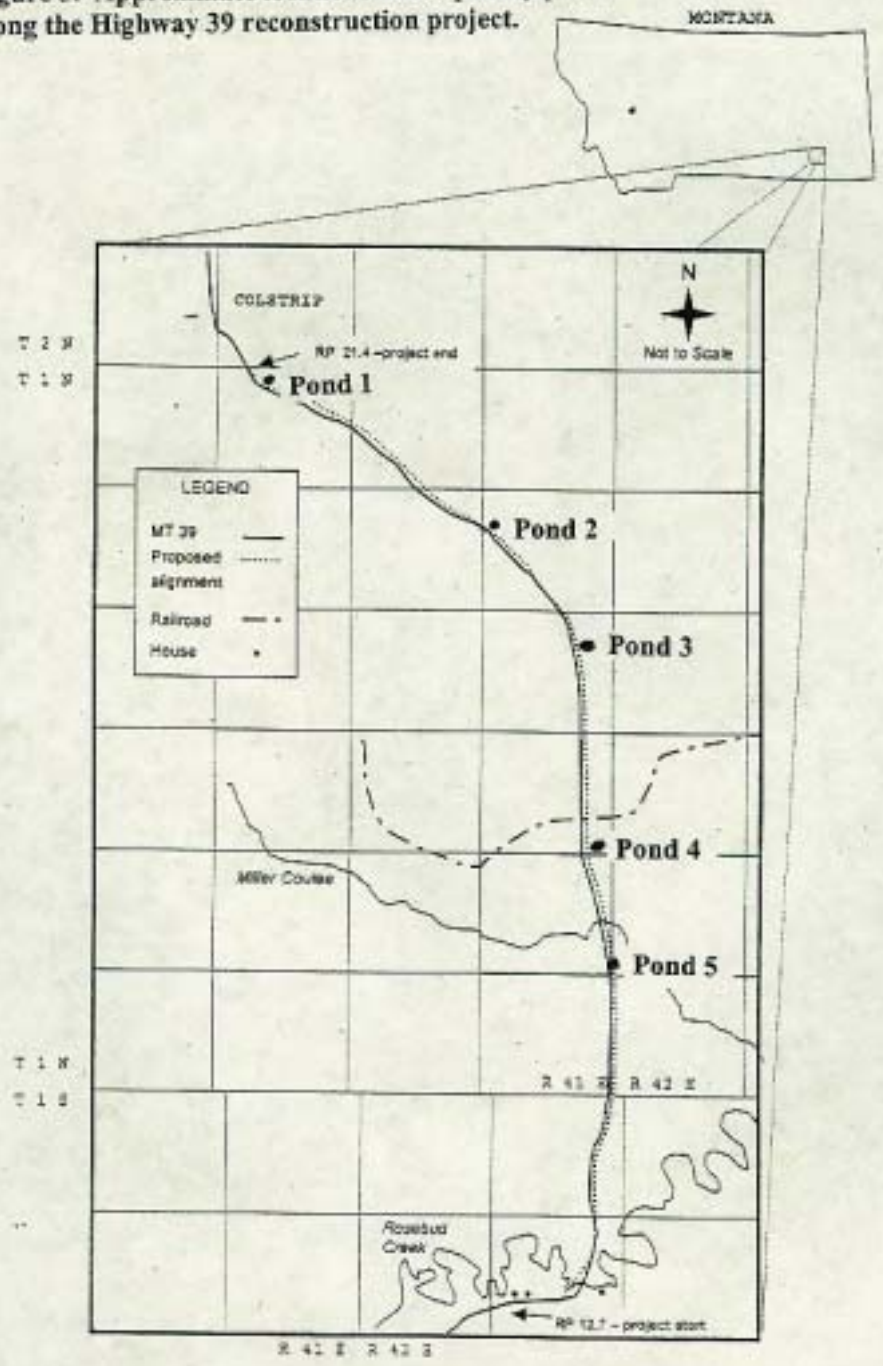
Water Sampling

To help ensure the water used on the Highway 39 project is maintained at a level of quality that would not affect vegetation or existing ground water on the highway project, PPL would sample the water weekly (Monday morning) at a point in the north end of North Pond C. Water samples would be brought into the PPL's Environmental Department lab and analyzed for specific conductivity using a laboratory grade conductivity meter. If the readings are above the conductivity limit of 5,000 µmhos, the contractor would not remove water from this pond until further notice. At this point, if the values of conductivity are exceeded, PPL has committed to reducing those levels by adding raw water make up from the south end of Pond C. The water would be sampled until the values have dropped below the conductivity limits, and at this time a sample would be taken from Pond C and sent to Energy Laboratory in Billings for a complete water quality analysis. This report would be submitted to the State DEQ, and if the results are acceptable, the contractor would be allowed to start pumping water to the highway holding ponds.

Water Distribution

Water would be pumped out of PPL's North Pond C at a point along the west edge of the pond. 0ftedal would install the pump and the pipe to get the water from North Pond C to their first holding pond located approximately 1.0 mile to the west (See Figure 3). From this first pond, water would be distributed by means of a 6-inch aluminum irrigation pipe to the other 4 holding ponds located along the length of the highway project.

Figure 3. Approximate locations of temporary ponds along the Highway 39 reconstruction project.



Pipeline

Water would be carried from PPL's Pond C to Oftedal's 5 storage ponds in a 6-inch diameter aluminum pipe. The pipe has a ¼-inch wall thickness and comes in 40-foot lengths. The pipes are joined together with a gasket and locking clamp system to prevent leaking at the joints. The 8-mile pipeline runs along the east side of the highway project for the entire 8 miles and stays within the highway right-of-way boundary.

Highway Ponds

The first pond that would receive water from PPL's Pond C is located at the beginning of the highway project. Each of the remaining 4 ponds are located approximately 1.5 miles from each other as the highway project moves south. (See Figure 3.) These ponds were constructed of earthen dams and lined with a 9-mil polyethylene liner (with factory seams). The liner is buried at the top of the dike with a total width of 3 feet to give added support to the liner. All 5 highway ponds are located on the east side of the highway and located mostly on private land outside the right-of-way boundary. When the dirt work has been completed, and the highway is ready for pavement, any water left in the ponds would be pumped back to PPL's Pond C, and the highway ponds reclaimed to final grade.

Water Trucks

10,000 Gallon water trucks from Oftedal Construction would carry water from the highway holding ponds to the highway to distribute the water along the length of the project. The water trucks would pull up next to the ponds and use a standpipe to fill the trucks from the top to minimize spillage. When Prince water trucks begin to prepare the roadway for paving, the trucks would pull water from the highway ponds until the ponds have been reclaimed. At this time, Prince would pull water directly from Pond C until the project has been completed.

Project Schedule

After approval, PPL would move water from ground water collection wells 10M, 10S, B4, B5 51 SP, 52SP, 53SP, and 54SP into pond C for storage. Soon afterwards, 0ftedal would have the pipeline built from the first highway holding pond to PPL's storage Pond C. The pipeline connecting the remaining 4 ponds is currently in place, and would only need to be reconnected. Oftedal has asked for a starting date of April 1, 2004. The amount of water needed in April and May would be dependent on the weather. With a normal spring, not a lot of water would be needed for compaction or dust control. Most of the water delivery from Pond C to the highway project would take place in June, July, and August. As was discussed earlier, the dirt work should be completed by July of 2004. The paving should start in June and finish shortly after the dirt work finishes in July.

Project Benefits

The benefits of allowing water from PPL Montana's groundwater collection systems to be moved off site for various projects are two fold. The company using the water would obtain water at a reasonable price and replace the source of water from the Western Energy Mine used in 2003. In addition PPL does not have to pump the water back into holding ponds that may be full. Currently there is a plan to reduce water inventory at the 3&4 ash disposal pond (EHP) by 500 million gallons. PPL is in the first year of that reduction plan, and has already reduced the inventory by 100 million gallons. The new paste plant that just went into operation in January of 2004, and summertime evaporators are the main sources of water reduction in use at this time. If the water from the groundwater collection systems could be used offsite, this would help the water inventory reduction by about 20% this year. The less water stored in the holding ponds the less head pressure there would be, and this in turn would decrease seepage. Each future project would have to be analyzed and evaluated for benefits, but PPL believes the proposed project has great potential with little risk involved.

Alternatives Considered:

In the checklist, beginning on page 12, the following alternatives are examined. A "Y" or "YES" indicates the potential for an impact to occur and a discussion is found on the right side of the check list. Longer discussions follow the checklist.

No Action: Under the No Action Alternative the Department would deny the Applicant's proposal to sell water from selected groundwater collections systems for beneficial uses including dust control, compaction, and for preparation of a cement/road mix sealant to be used while reconstructing 10 miles of Highway 39. It is assumed that water necessary for the project would come from an alternative source or sources.

Proposed Action: Approval of the Proposed Action Alternative would allow PPL Montana to sell ground water collected from wells in two areas near the generating plants for off-site beneficial uses including dust control, compaction, and for preparation of a cement/road mix sealant to be used while reconstructing 10 miles of Highway 39 during the 2004 construction season as described in PPL's notice of amendment. Up to 20 million gallons of water would be collected from wells 10 M, 10S, B4, and B5 in Area 1 and wells 51S, 52S, 53S and 54S in Area 2. PPL would sample the water weekly (Monday morning) at a point in the north end of North Pond C. Water samples would be brought into the PPL's Environmental Department lab and analyzed for specific conductivity using a laboratory grade conductivity meter. If the readings are above the conductivity limit of 5,000 µmhos, or boron concentration greater than 4.0 mg/l, the contractor purchasing the water would not remove water from this pond until further notice. At this point, if the values of conductivity are exceeded, PPL has committed to reducing those levels by adding raw water make up from the south end of Pond C. The water would be sampled until the values have dropped below the conductivity limits, and at that time a sample would be taken from Pond C and sent to Energy Laboratory in Billings for a complete water quality analysis. This report would be submitted to DEQ, and if the results are acceptable, the contractor would be allowed to start pumping water to the highway holding ponds.

PPL also would mitigate any impact of salt cedar to the highway project by eliminating all sources of seed producing plants from around the holding pond (Pond C) this spring before any of the trees had a chance to produce seeds. PPL has a weed management program in place and would assume responsibility for controlling salt cedar along the 10-mile highway right-of-way for a period of 5 years. After 5 years the Montana DOT and the Rosebud County Coordinator would evaluate the area and decide if further noxious weed control would be required.

Approval with Additional Mitigations: This alternative would be the same as the proposed action with addition of the following mitigating measures which PPL would agree to implement before transferring recovered water off-site:

Monitoring Requirements

In addition to testing water as outlined in the proposed action, the following monitoring steps would be followed.

Prior to delivery of the first batch of water to the highway contractor, PPL Montana would test the water in north Pond C as described above and results sent to DEQ for approval prior to initial water transfer. Testing would be for Specific conductivity, total dissolved solids, pH, sodium adsorption ratio (SAR), a screen for PCBs, and total dissolved calcium, magnesium, sodium, boron, selenium, arsenic, mercury, and chromium. Subsequent water quality monitoring may be adjusted based on these results.

PPL would be required to test water in north Pond C for electrical conductivity and pH at the start of each day that recovered water would be removed from the pond. Prior to each test, equipment would be calibrated to standard solutions having electrical conductivities and pHs similar to those expected in the ponds. If electrical conductivity exceeded 5,000 µmhos, or if pH was either greater than 8 or less than 6, procedures outlined under the proposed action for full testing would be implemented immediately.

Unless initial testing suggests otherwise, PPL would be required to test water in north Pond C at the beginning of every other week for electrical conductivity, total dissolved solids, pH, boron, sodium adsorption ratio (SAR), selenium, and chromium at a commercial laboratory and submit results to the department. Results would be reported to DEQ as they become available.

The department would implement the monitoring program outlined below.

Soil, sediment, and surface water monitoring

Two aspects of the project are of particular concern from the standpoint of assessment of impact on natural resources – 1) leakage from the irrigation pipe and 2) erosion and subsequent contaminated sediment and surface water discharge offsite in stream channels. Evaluating the amount and impacts of leakage from the pipeline will assist in development of improved operation of the pipeline and assessment of the need for and type of mitigation requirements, if necessary. Evaluating the sediment leaving the site will provide an assessment of the quality of that material and an estimate of the quality of the surface water leaving the site. Such information can be used in assessing offsite impacts and potential remedial activities from the project.

Essentially every pipe joint was leaking during field studies on March 25 and 26, 2004. Monitoring would involve sampling wetted surface materials, wetted soil – regolith – parent rock materials, and dry underlying materials under the pipeline near the joint and one meter down slope from the joint again under the pipeline. Sampling along the pipeline will be undertaken and will be limited to 14 points along the pipeline. Initial sampling would be done prior to use of the water from recovery wells and at several dates during the summer. These samples would be held for analysis if a subsequent problem were found during project inspection by Department staff. If the use of water from recovery wells ~~use~~ is initiated on April 15, 2004, site identification and sampling would be done the first week in April with subsequent sampling on May 15, 2004, June 15, 2004; August 15, 2004, and at the end of road construction activities or late fall 2004. Five sites should be established in the uplands, in or near flat bottom drainages, and four near the V bottom of steep sided drainages.

Discharge of contaminated materials will follow the drainage ways off of the site. Obtaining water quality samples from the channels is not practical given the cost. The quality of ~~the sediment~~ affected soils will provide an indication of the impact to the immediate area and downstream sampling points can be used to define the extent of the impact where off-site movement of recovered water or sediment from the highway reconstruction is observed during inspections. Three sample stations will be established in ~~the steep V bottom channels and three in the flat bottom drainage ways~~ affected areas. Sampling points will be established at the fence line/boundary of highway project and at 4 – 20 – 150 meters down slope in the channel. Samples will be collected from recent or existing sediments, wetted native soil or parent rock, and underlying dry soil or parent rock as indicated on the following page.

Concern has been expressed about the potential transfer of weed seeds from the Pond C Area to the highway and surrounding lands. A simple greenhouse test of sediments from Pond C will be undertaken to guide identification of and resolution of potential weed control issues.

OFFSITE IMPACT MONITORING ON PP&L WATER FROM RECOVERY WELLS PROJECT

monitoring of pipeline

Dates	Site Position # upland sample sites	Site Position # steep V channel sample sites	Site Position flat bottom channel sample sites	Parameters tested: Se, B, & sat paste	Parameters tested: B & sat paste
04/05/04	5	4	5	14	0
05/01/04	5	4	5	0	14
06/15/04	5	4	5	14	0
08/15/04	5	4	5	0	14
end	5	4	5	14	0
			Total	42	28

OFFSITE IMPACT MONITORING ON PP&L WATER FROM RECOVERY WELLS PROJECT

channel offsite sampling

Approximate Dates (as needed)[1]	Anticipated # of steep V channel samples	Anticipated # of flat bottom channel samples	Parameters tested Se, B, & sat paste	Parameters tested B & sat paste
04/05/04	2	5	15	0
05/01/04	3	5	0	15
06/15/04	3	5	15	0
08/15/04	3	5	0	15
end	3	5	15	0
		Total	45	30

[1] Samples would be collected prior to using recovered water on the highway project. During the project samples would be collected as needed where off-site movement of recovered water or sediment from the highway reconstruction project is observed during inspection.

Conditions

Before the start of the project PPL would fully control the salt cedar (*Tamarix sp*.) in Pond C, using only herbicides approved by EPA for use near water. PPL would be responsible for ~~weed~~ salt cedar and knapweed weed control along the highway project for a five-year period following construction. At the end of the five-year period DEQ would invite a representative from PPL or its successor and the county weed control supervisor to review the highway project to determine what, if any, additional weed control measures are necessary for these two species.

As a condition to the sale of recovered water by PPL to the contractors, the appropriate contractor would be required to:

1) Cease any road construction water application during a precipitation event that could cause off-site runoff;
2) Not allow surface runoff or sediment movement that would reach surface water bodies or stream channels during application of water for dust control, compaction, or road surfacing;
3) Not apply recovered water within 100 feet of an intermittent stream or within 100 yards of Rosebud Creek;
4) Drain the pipeline each time after temporary ponds are filled;
5) Inspect the pipeline and ponds for leaks while pumping operations are underway and following pipeline draining;
6) If pipeline or pond leakage is detected, the leakage of recovered water from minor leakage would not be allowed to flow off the fenced highway right-of-way. If it did, the contractor would be responsible for recovering this water and any saturated soils unless otherwise specified by the landowners in writing. In the event of a larger leak ~~would be captured, and~~ the pipeline would be shutdown until repairs are completed;
7) The pipeline only be used during the day;
8) Storm water controls would meet DEQ guidelines to reduce the likelihood of sediment reaching off road and storm water controls would be maintained;
9) Pipeline bracing would be improved and maintained; and
10) Prior to use of the pipeline for moving recovered water, demonstrate the integrity of the pipeline.
11) From the recovery wells to and including North Pond C, PPL would be responsible for pipeline and pond leakage. From North Pond C to the south, contractor(s) would be responsible for cleaning up any water that leaves the ROW along with any contaminated sediment and any soils saturated with recovered water unless otherwise specified in writing by the landowner(s). Likewise, PPL or the contractor(s) would be responsible for restoration of any areas damaged by cleanup operations. The intent of this measure is ensure that adjacent landowner(s) do not assume any liability for cleanup caused by actions of either PPL or the contractors who would each benefit from the use of recovered water on the highway project. Adjacent landowners would not be held liable for any future cleanup costs associated with contractor use of recovered water on the highway 39 project.

DEQ personnel would monitor the project approximately once a week during initial phase of construction with potential reduction in interval if work were being accomplished in a satisfactory manner. If monitoring reveals that operations are not in compliance with these conditions, transfer of recovered water off the plant site must be

terminated immediately. Following construction, DEQ personnel would monitor the area for establishment of noxious weeds. PPL would bear the cost of monitoring by DEQ as allowed by 75-20-704, MCA.

N = Not present or No Impact would occur. Y = Impacts may occur (explain under Potential Impacts).

IMPACTS ON THE PHYSICAL ENVIRONMENT				
	ALTERNATIVES			POTENTIAL IMPACTS AND MITIGATION MEASURES
RESOURCE	No Action	Proposed Action	Approval with Additional Mitigations	
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are soils present which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?	Y	Y	Y	Potential impacts on soil quality include contaminated surface runoff and sediment deposition on surrounding areas, and application of runoff onto top-dressed areas on site. The quality of the water to be used in road construction is higher in salt content (salinity) sodium (alkalinity/sodicity) and sodium adsorption ratios (SARs) than most of the offsite receiving soils and parent rock materials in the area. Increases in salinity make it more difficult for plants to remove soil moisture which is necessary for growth and survival. Soils with high levels of sodium are generally considered ~~unstable~~ unsuitable and surface horizons tend to seal preventing infiltration of surface water. The reactions of salinity and sodicity with the road surface materials are unknown, and responsibility for suitability assessment lies with PPL, Montana Department of Transportation and Oftedal Construction. Boron, salinity, and sodicity values are present in moderate to relatively high concentrations and are the primary contaminants of concern. Boron is toxic to plants and a frequent problem associated with irrigated lands. Salinity and sodicity have the capacity to degrade soil quality. Table 1 indicates the range of values expected in the water from recovery wells and suitability values for several potentially toxic water constituents for irrigation are shown in Table 2. Selenium concentrations in the well water to be used in road construction have been low for an extended period of time but monitoring its concentration in water from recovery wells and soils/drainage-ways near the road construction is prudent as it has the potential to degrade soil quality. Stipulations and monitoring efforts have

IMPACTS ON THE PHYSICAL ENVIRONMENT				
	ALTERNATIVES			POTENTIAL IMPACTS AND MITIGATION MEASURES
RESOURCE	No Action	Proposed Action	Approval with Additional Mitigations	
				been developed to prevent or limit degradation in soil quality. A monitoring program has been developed and is described on page 9-11.
2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?	Y	Y	Y	As proposed, moderate but potentially significant impacts could occur to surface and groundwater resources as described in more detail on page 20. With additional mitigating measures impacts could be reduced to the low to moderate range. Under the No Action Alternative impacts are not known because an alternative source of water has not been identified.
3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I air shed)?	N	N	N	
4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be significantly impacted? Are any rare plants or cover types present?	Y	Y	Y	See discussion on page 18.
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	Y	Y	Y	Under the proposed Action and Approval with Additional Mitigations, there is a small risk that recovered water would make its way to surface water and affect aquatic habitat. This may occur during rainstorms or from a leaky pipeline.
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?	N	Y	Y	The highway reconstruction project crosses Rosebud Creek and associated downstream riparian/wetland corridor. The Proposed Action and Approval with Additional Mitigations alternatives would cause no additional physical disturbance to wetland areas.
7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	N	N	N	DOT conducted a cultural resource inventory on the project corridor. This survey revealed 12 cultural sites (one of which required further testing) and six Minimal Activity Loci. Of these, only one site (24RB1861), is eligible for the National Register of Historic Places (NRHP) under Criterion D. This site, the McRae Bison Kill, is a large prehistoric site complex, and the highway project impacts a small area of surficial lithic debris at the western part of the site. This portion of the site was found to be noncontributing to the significance of the site as a whole, and the site's NRHP

IMPACTS ON THE PHYSICAL ENVIRONMENT				
	ALTERNATIVES			POTENTIAL IMPACTS AND MITIGATION MEASURES
RESOURCE	No Action	Proposed Action	Approval with Additional Mitigations	
				eligibility is not affected by the proposed project. The Proposed Action and Approval with Additional Mitigations alternatives would cause no additional disturbance to this site. Other aspects of these alternatives would result in minimal disturbance of previously disturbed areas.
8. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	N	N	N	While the highway reconstruction project would alter topography, use of recovered water would have no additional impact.
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?	Y	N	N	Water availability is somewhat limited in the area. Under the No Action Alternative the highway contractors would have to find an alternative source of water. The source of this water is not known but might include local wells or a surface water source. Under the action alternatives about 16-20 million gallons of recovered water would be beneficially used.
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?	Y	Y	Y	Under all alternatives the highway project would continue.
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	N	N	N	
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	N	Y	Y	Use of collected water would beneficially assist in reducing future leakage from the 3-4 ash disposal pond by reducing the amount of standing water in the pond and will thus reduce impacts to ground water quality.
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	Y	Y	Y	Under each of the alternatives, the highway project and associated employment would continue. Under either of the action alternatives, additional monitoring would be required. This monitoring would contribute to employment at labs, with PPL, and the Department.
14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	N	Y	Y	Additional work created under the action alternatives would indirectly contribute to a small amount of tax revenue. Allowing contractors to use recovered water and not having to go to great lengths to find other water sources, would help the contractor to control project costs. This in turn would keep the contractors working and thus provide money to local and state tax bases.

IMPACTS ON THE PHYSICAL ENVIRONMENT				
	ALTERNATIVES			POTENTIAL IMPACTS AND MITIGATION MEASURES
RESOURCE	No Action	Proposed Action	Approval with Additional Mitigations	
15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?	N	Y	Y	The Department would monitor the project to ensure it meets conditions of the amendment under the proposed action and Approval with Additional Mitigations.
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	N	N	N	
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	N	N	N	
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	N	N	N	
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	N	N	N	
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	N	N	N	
21. PRIVATE PROPERTY IMPACTS: Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required.	Y	Y	Y	
22. PRIVATE PROPERTY IMPACTS: Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required.	Y	Y	Y	Under the Proposed Action the restrictions proposed by the applicant would be approved with no further requirements. Under the Approval with Additional Mitigations Alternative, DEQ would require additional measures to reduce the likelihood of recovered water <u>leaking on the plant site or</u> moving off the highway right-of-way and ~~under the second Alternative,~~ would assign liability to <u>either</u> PPL <u>or the contractor(s), depending on location,</u> for any future cleanup costs that may result from use of recovered water in this manner. Under the No Action Alternative the application would be denied.

IMPACTS ON THE PHYSICAL ENVIRONMENT				
	ALTERNATIVES			POTENTIAL IMPACTS AND MITIGATION MEASURES
RESOURCE	No Action	Proposed Action	Approval with Additional Mitigations	
23. PRIVATE PROPERTY IMPACTS: Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.	Y	Y	Y	Under 75-20-219, MCA if the department determines that the proposed change would result in a material increase in any environmental impact of the facility or a substantial change in the location of all or a portion of the facility, the department shall grant, deny, or modify the amendment with conditions as it considers appropriate. Under the Approval with Additional Mitigations alternative DEQ would be adding additional mitigating measures because the proposed change would potentially allow a material increase in impacts and these impacts would be located in an off-site area not originally covered by the certificate. The mitigating measures were developed in a manner that considered cost and restrictive nature of alternative measures. Measures ruled out included: 1) those that would have required testing a full range of chemical parameters on a daily basis before moving water off-site because such testing would unnecessarily delay transfer of water off-site while laboratory analysis is completed; 2) use of state of the art erosion control devices beyond those required in the highway contractor's storm water control plan because if properly implemented erosion control measures typically required on highway projects would adequately control sediment runoff resulting from common rain storms; 3) requiring the use of a new pipeline that does not leak because of increased costs, because the proposed water quality together with additional mitigations and the amount of leakage that could occur would not be likely to result in substantial reduction of impacts to soils or vegetation; 4) allowing the adjacent landowners to assume liability for any future cleanup costs associated with pipeline leakage or leakage from temporary ponds because they would not receive additional benefits from use of recovered water from the plant site; 5) more frequent monitoring because of cost; and 6) assigning sole liability for any future cleanup associated with using

IMPACTS ON THE PHYSICAL ENVIRONMENT				
	ALTERNATIVES			POTENTIAL IMPACTS AND MITIGATION MEASURES
RESOURCE	No Action	Proposed Action	Approval with Additional Mitigations	
				recovered water on the Highway 39 reconstruction project to PPL, because ~~both~~ either PPL ~~and~~ or the highway contractors could be responsible depending on spill or leak location ~~share responsibility~~. Further modifications to the Approval With Additional Mitigations Alternative were added following the comment period.
24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:	N	Y	Y	Under the Proposed Action and Approval with Additional Mitigations alternatives DEQ would be allowing PPL to sell water recovered from leaking ponds on PPL's property for use on the highway project. Recovered water would be pumped to and temporarily stored in ponds built on private property adjacent to the highway right-of-way. When landowners agreed to allow the use of their land for the temporary ponds in 2003, they were under the impression that the water stored there would be from a pit in Western Energy's mine. Use of recovered water from the plant site concerns landowners because they might become liable for any future cleanup costs if the ponds or pipelines leak recovered water onto their property. Under the Proposed Action adjacent landowners may be liable for future cleanup costs if recovered water moved off the highway right-of-way. Under the Proposed Action Alternative with Additional Mitigations, PPL ~~and~~ or highway contractor(s) would assume future liability for costs associated with any cleanup associated with use and leakage from the North Pond C, temporary ponds, and pipeline, and other measures are proposed to substantially reduce leakage and resulting deleterious effects.

Additional Discussion of Impacts:

Vegetation Quality, Quantity, and Cover:

The potential impacts of using water from recovery wells for dust control and compaction include 1) leakage or other forms of distribution of water on surfaces within the right-of-way that would not be part of the road itself and 2) surface water and contaminated sediment from the site entering drainage channels exiting the project area. A field inspection on March 25 and 26, 2004 revealed that considerable raw water leakage from the contractor's

pipeline was taking place and at these points water exits across slopes that are to be revegetated. Water truck applications appear to be covering some areas that will be reseeded.

The contaminated water from recovery wells has the potential to be concentrated in the soil system due to evaporation. Water from recovery wells contains concentrations of potentially plant toxic components that are moderate to high for agricultural irrigation use. In reseeding and revegetation efforts along the highway project, the impact will be more severe on germinating and establishing plants. The seed mixture to be used on the site would be characterized as a "shotgun" mixture with several species having differing ecological amplitudes – some of which have greater tolerance to salinity, sodicity, SAR, and boron than others.

Offsite potential impacts are of a somewhat different nature – sediment mixed with potentially contaminated surface waters entering drainage channels. Three general types of drainages exist in the area – 1) steep sided V bottom intermittent types with limited or no vegetative cover, 2) flat bottom intermittent drainage-ways supporting productive plant communities and 3) a wider perennial channel with various vegetation associated with Rosebud Creek. The potential impact is greatest on the flat bottom drainage-ways where the sediments and surface waters could directly affect plant community composition and productivity. The design criterion for typical storm water runoff controls of a two year storm does not apply on this project – the vast majority of surface water and sediment must be contained onsite because of the potential for off-site contamination. Concomitantly, minimal application of erosion and sediment control best management practices (BMP's) will not provide the protection required.

Partial mitigation can result from removal of sediment that would exit the site. However, the runoff waters that would carry the sediment will contain potentially toxic levels of contaminants. Evaporative losses will generally reduce the volume of surface water somewhat but the remainder will infiltrate and percolate into the underlying soil system. The monitoring program outlined on pages 9-11 would provide data ~~on both scenarios~~ related to use of recovered water ~~from recovery wells disposal problems~~. Frequent thorough inspections of the site coupled with soil data collection to document conditions prior to and after use of the water from recovery wells can minimize the potential impact of using water from recovery wells in the highway project. It must be understood, by all parties, that if the erosion and sediment control practices are not upgraded and problems with leakage from the pipeline solved and maintained as such, the use of water from recovery wells would result in off-site impacts. In this case the Department would require that movement of recovered water from the plant site be terminated immediately.

Impact Assessment

Under the Approval with Additional Mitigations Alternative with restriction of surface water and sediment to the site, no off-site impacts would occur by definition. With this level of water management, the onsite impacts to the revegetation effort would be limited – given the level of water control required to prevent offsite impacts.

The more probable scenario would include installation and maintenance of best management practices (BMPs) by the contractor to limit off-site surface water and sediment discharge. Removal of off-site sediment in drainage-ways and evaluation of changes in soil chemistry with mitigation, if required, could limit these impacts. Onsite impacts would be low to moderate – depending upon the amount of waste water that finds its way into reseeding with plant species having greater tolerance to the contaminants, to chemical amendments of surficial earthen materials, and/or removal of toxic earthen materials and replacement with quality topdressing materials.

Under the Proposed Action, continuing current operation would result in at least moderate impacts to onsite areas and moderate to heavy impacts to off-site environments – particularly to the flat bottom stream channels which are very productive.

Boron concentrations

Irrigation waters with greater than 0.5 to 1 ppm boron will negatively impact a range of plant species. It is often associated with saline irrigation water but not always. Water quality data from the source area indicates that boron might be a significant problem. Plant species have differing tolerances to elevated boron levels in irrigation water.

Vegetation – additional materials

Salt cedar (*Tamarix sp.*) has been established within Pond C where the recovery water will be held and mixed prior to pumping to the road construction project. Other noxious weeds such as knapweed (*Centaurea sp.*) was also found at the pond site. Salt cedar has very limited seed viability – less than a week in dry environments and thirty to sixty

days in moist environments. It is possible that some viable seed might be taken up with the recovery water but probability of successful establishment is very low. PP&L is actively controlling the salt cedar populations in and near Pond C. PP&L has committed to monitoring the project site and eliminating any salt cedar establishment for a five-year period. DEQ will undertake a greenhouse assessment of viable weed seeds from sediments in Pond C noted earlier in Monitoring Section. Any establishment of knapweed and other noxious weeds will be noted during inspections and monitoring of the project. Those populations, if established, will be controlled. After five years, PPL, the ~~Montana DOT and~~ Rosebud County ~~Coordinator~~ Weed Supervisor and DEQ will evaluate the area and decide if further noxious weed control would be necessary.

BIOLOGICAL EFFECTS OF BORON IN IRRIGATION WATER

medium	no effect (mg/l)	level of concern (mg/l)	toxicity threshold (mg/l)	explanation
water	0.5	0.5-10	10	for crops and aquatic plants
	6	6-13	13	for aquatic invertebrates
	5	5-25	25	for fish
			<200	for amphibians
				mg/l = ppm

From: U.S. Department of Interior 1998. National Irrigation Water Quality Program. Guidelines for Interpretation of the Effects of Selected Constituients in Biota, Water, and Sediment. Report No. 3 – Boron

Guidelines for Irrigation Water Quality

	intensity of problem		
water constituent	no problem	moderate	severe
salinity dS/m-1 (mmohs/cm)	<0.7	0.7-3.0	>3.0
permeability (rate of infiltration affected)			
salinity (dS/m-1) (mmohs/cm)	>0.5	0.5-0.2	<0.2
adjusted SAR; soils are …			
dominantly montmorillonite, smectites			
dominantly illite-vermiculite	<6	6-9	>9
dominantly kaolinite-sesquioxides			
Specific ion toxicity			
sodium (as adjusted SAR) (sprinkler)	<3	3-9	>9
boron (mg/L)2 as B	<0.70	0.70-3.0	>3.0

Bauder, J. Quality and Characteristics of Saline and Sodic Water Affect Irrigation Suitability, Department of Land Resources and Environmental Quality, Montana State University, Bozeman, Montana

BIOLOGICAL EFFECTS OF SALINITY

salt tolerance of herbaceous crops (soil conductivity)

common name	botanical name	threshold dS/m (mmhos/cm)	common name	botanical name	threshold dS/m (mmhos/cm)
alfalfa	*Medicago sativa*	2	Durum wheat	*Triticum turgidum*	2.1
barley	*Hordeum vulgare*	6	crested wheatgrass	*Agropyron sibiricum*	3.5
ladino clover	*Trifolium repens*	1.5	tall wheatgrass	*Agropyron elongatum*	7.5
orchardgrass	*Dactylis glomerata*	1.5	beardless wildrye	*Elymus triticoides*	2.7

From: U.S. Department of Interior 1998. National Irrigation Water Quality Program. Guidelines for Interpretation of the Effects of Selected Constituients in Biota, Water, and Sediment. Report No. 3 – Salinity.

Water Quality, Quantity and Distribution

The quality of water from wells that would be diverted from the plant site to the highway project is summarized in Table 1 along with water quality at selected wells east of the highway in a coalmine. Table ~~3~~ 2 indicates water quality in Rosebud ~~County~~ Creek during fall and in Castle Rock Lake. Water quality trends for the recovery wells are shown in Appendix A. On average, water from the recovery wells has electrical conductivities that are higher than wells in adjacent strip-mined areas (spoils). Similarly, average sulfate, boron, sodium, and chloride concentrations of water from recovery wells are higher than mine wells. Sodium adsorption ratios (SARs) for water from some recovery wells are substantially higher than for nearby waters. Note that this comparison is based on simple arithmetic averages, as information contained in the notice to amend is not sufficient to calculate weighted average water quality based on the relative contribution of each recovery well. Water in area shallow aquifers on un-mined private lands is extremely variable ranging from much better than the average water quality of the recovery wells to somewhat poorer than average water quality from the recovery wells. PPL has committed to maintaining electrical conductivity below 5,000 µmhos/cm in water delivered to the highway project, by diluting water delivered to the highway project with raw water (water diverted from the Yellowstone river and held temporarily in Castle Rock Reservoir). This proposed action would result in moderate impacts to surface and ground water if applied water would move off the right-of-way.

Water quality standards adopted for the Rosebud Creek drainage limit average electrical conductivity during summer months to 1,000 microsiemens/cm, and no sample may exceed 1,500 microsiemens/cm, much lower than the electrical conductivity of water from the recovery systems. Similarly, average sodium adsorption ratios (SAR) of Rosebud Creek water are limited to 3 and no sample may exceed 4.5 during summer months. Most SARs of recovered water are less than 3 but SARs of a few wells exceed 3 (see Table 2).

TABLE 1 – WATER QUALITY OF WELLS THAT WOULD BE USED ON THE HIGHWAY 39 RECONSTRUCITON PROJECT

	10M	10S	Units 1 & 2 Brine Pond Dewatering Well #4[1]	Units 1 & 2 Brine Pond Dewatering Well #5[1]	51SP	52SP	53SP	54SP	18SP[2]	18S[2]	18M[2]	18D[2]	26SP[2]	26M
pH	6.1	7.3	6.8	7.3	7.3	7.4	7.2	7.2	6.8	7	7	7.6	6.5	7.4
Spec.Cond.(umho/cm)	4585	5170	4890	3590	2970	2850	2660	3115	3325	3500	3375	2360	6740	1510
Total dissolved solids - TDS mg/l)	4695	5400	5610	3690	2520	2380	2240	2705	3260	3375	3270	1645	7195	1025
Chloride - Cl (mg/l)	89	167	95	70	55	52	53	51.5	34	36	35	14	157	7
Sulfate - So4 (mg/l)	3150	3230	3060	1990	1400	1380	1300	1490	2140	2160	2110	809	4395	371
Boron - B (mg/l)	0.4	2.5	3.2	1.2	2.5	2.4	1.5	1.15	0.65	1.45	1.65	0.65	2.2	1.1
Calcium - Ca (mg/l)	309	416	515	441	225	230	214	235	362	377	373	87	581	123
Magnesium - Mg (mg/l)	457	507	585	313	108	75	66	121	281	287	282	39	713	69
Selenium - Se (mg/l)	ND	0.01	<.005	<.005	ND	ND	ND	ND	ND	ND	ND	ND	0.009	ND
Sodium - Na (mg/l)	268	338	218	95	360	375	359	362	134	142	140	401	423	122
Sodium Abdsorption Ratio (SAR)	~~13.7~~ 2.3	~~15.7~~ 2.6	~~9.3~~ 1.6	~~4.9~~ 0.8	~~29.9~~ 4.9	~~30.4~~ 5.4	~~30.3~~ 5.6	~~27.1~~ 4.8	~~7.5~~ 1.3	~~7.8~~ 1.3	~~7.7~~ 1.3	~~50.9~~ 9.2	~~16.6~~ 2.8	~~12.4~~ 2.2

1. 1999 data presented
2. These wells are located in the vicinity of Brine Pond Dewatering Wells #4 and #5.

TABLE 2 – WATER QUALITY OF WELLS, RESERVOIRS AND STREAMS NEAR THE HIGHWAY 39 RECONSTRUCTION PROJECT

	SPOILS WS-117	SPOILS WS-110	INTER-BURDEN WI-117	McKAY COAL WM-121	Rosebud Creek below Miller Coulee 11/01/77[a]	Rosebud Creek below Miller Coulee 10/17/83[a]	Raw Water from Castle Rock Lake 12/18/02[b]
pH	-	-	-	-	8.6	8.1	8.3
Spec.Cond.(umho/cm)	2844	1273	2833	696	1250	3400	1354
Total dissolved solids - TDS (mg/l)	2648	1678	2536	436	860	2690	432
Chloride - Cl (mg/l)	26.25	9.5	23.25	5.9	5.2	7.6	11
Sulfate - So4 (mg/l)	1323	495	1256	129	320	1600	194
Boron - B (mg/l)	0.65	0.27	0.73	0.43	0.19	0.52	0.2
Calcium - Ca (mg/l)	317	165	313	56	73	130	61
Magnesium - Mg (mg/l)	283	152	254	50	100	200	24
Selenium - Se (mg/l)	<0.01	<0.01	<0.01	<0.01	-	-	<.005
Sodium - Na (mg/l)	84.5	23	90	24	81	440	59
Sodium A~~b~~dsorption Ratio (SAR)	~~4.9~~ 0.8	~~1.8~~ 0.3	~~5.3~~ 0.9	~~3.3~~ 0.5	~~1.4~~ 1.5	~~5.7~~ 5.6	~~9.1~~ 1.6

a. Source: U.S. Geological Survey Water-Resources Investigations Report 85-4302. Variability in Base Stream flow and Water Quality of Streams and Springs in Otter and Rosebud Creek Basins, Southeastern Montana by John H. Lambing and Rodger F. Ferreira, March 1986.
b. Source: PPL 2004. Notice to amend the 3 & 4 Certificate of Environmental Compatibility and Public Need.

Landowners, adjacent to the highway construction project, are very concerned with the possibility of water leaving the highway project and causing pollution of neighboring soil and water resources. The proposed action includes use of a PPL pipeline to move water from plant site wells to Pond C ~~on the plant site~~ and a contractor pipeline from North Pond C to a series of lined holding ponds adjacent to the highway project. When the site was inspected on March 25 and 26, 2004, nearly all the joints in the portion of the contractor's pipeline that was active were found to be leaking. Between some joints, ~~numerous~~ pinhole leaks allowed a steady fine spray of water to be released, and the aluminum pipeline was kinked in several places. Over time it is possible that some of this leakage from the pipeline would recharge shallow aquifers. An adjacent landowner noted that during 2003, when water was used from the Western Energy Mine, leakage from the pipeline flowed from either the temporary ponds or the pipeline off the right-of-way to his property and provided his livestock with unexpected sources of water. In addition leakage from the pipeline in 2003 made newly installed right-of way fencing unstable indicating considerable leakage was occurring. The landowner further mentioned that the pipeline is not inspected for leaks at night when much of the pumping occurs. Based on this experience, unless additional measures are taken, it is likely that leakage from the pipeline will continue in 2004, discharge to surface drainages will continue, and discharge to shallow aquifers could occur.

Additionally inspection revealed that in several steep-sided drainages the pipeline was minimally supported by two by four x-bracing. The bracing was in poor repair in several places and the pipeline was kinked, resulting in the possibility of the pipeline failing.

According to PPL staff, the pipeline leaks at the joints between pipe sections while the pipeline is being pressurized and as the pipe is depressurized. Leakage at joints is greatly reduced or eliminated at full pumping pressure. The pipeline also has pinhole leaks that would be repaired. Currently the pipeline is pressurized to refill temporary ponds along the highway for a short period at approximately weekly intervals. As conditions become drier the pipeline and pumps would be used more frequently. One factor contributing to pipeline leakage is that when pumps are not pressurizing the pipeline, the pipeline is not drained and water remains in the pipeline at lower pressures. If the pipeline could be drained, the amount of time that it could leak would be reduced. The highway contractor has indicated that he could drain the pipeline when it is not in use (pers. comm. March 29 and 31, 2004 between Bill Neumiller, PPL and Tom Ring, DEQ). However, the pipeline could not be drained completely and some water may remain in the pipeline at low spots such as where the pipeline crosses drainages.

Under the Proposed Action Alternative sediment could move off the highway right-of-way during a storm. Inspection showed that along the highway project many erosion, runoff and sediment controls were installed improperly or were not installed at all. Sediment controls are only required to address erosion and runoff that would result from a storm with intensities equal to that of the most intense storm that occurs every other year. Under all three alternatives a less frequent but more intense storm may occur during project construction that would result in sediment being washed off-site.

Under the Proposed Action and Approval with Additional Mitigations Alternatives ground water recovered from the plant site would be applied to the highway project for dust control, compaction, and for hydrating a ~~subsurface~~ surfacing ~~concrete~~ layer. Until the road surface is paved, a small amount of groundwater recharge may still occur as a result of precipitation falling and saturating the road surface. In addition, salts that accumulate on the surface due to evaporation could be dissolved during a rainstorm and washed from the highway project to adjacent private land. In either case there could be some dilution; the exact amount would depend on rain intensity and duration.

Given the poor condition of the existing pipeline and relatively poor quality of the recovered water that would be used on the highway project, impacts to water quality under the Proposed Action Alternative could degrade water quality in the area. Without additional mitigating measures, there is a high probability that relatively poor quality recovery well water will leave the highway project through shallow groundwater paths and as surface runoff.

Additional mitigating measures could be implemented that would greatly reduce, but not eliminate, the possibility of off-site impacts to water resources. If the following steps would be taken, then impacts could be characterized as low to moderate: 1) a monitoring program is implemented as described under the Approval with Additional Mitigations Alternative; 2) depending on location, either PPL or the contractor(s) assuming liability for any future cleanups and reclamation; 3) if prior to the diversion of recovered groundwater, the pipeline could be shown to be

leak-free while operating for several cycles; 4) pipeline bracing be improved in drainage ways; and 5) a thorough program initiated to quickly identify leaks and immediately shutdown the system when leaks are detected.

Under the No Action Alternative it is assumed that water from another source would be used. It is unclear where this water would come from because the availability of alternative ground and surface water sources is unknown. If the water were to come from wells, some of the water quality in the area is better and some poorer than that proposed to be used. The same can be said for diversion of surface water. Consequently relative impacts under the No Action Alternative could be greater or less than those proposed.

26. Public Involvement: The notice required to accompany an amendment was published in a local paper. Parties to the original certificate proceedings also received a notice describing the proposed amendment. A press release was issued on April 5, 2004 to the State of Montana Newslinks Service when the EA was issued. Copies of this environmental assessment were mailed to parties to the original certification proceeding, affected state agencies, and to landowners adjacent to the highway project. A four-day period in which to submit comments on the EA will close April 9, 2004. One letter of comment was received and comments and responses are indicated at the beginning of this document.

27. Other Governmental Agencies with Jurisdiction: The Department of Natural Resources and Conservation may have to issue a temporary water use permit for use of raw water or water from other surface sources for the highway project. The Department of Transportation has jurisdiction over reconstruction of the highway. Rosebud County Weed Control Board has responsibility for weed control on the highway reconstruction project.

28. Magnitude and Significance of Potential Impacts: Under the Proposed Action Alternative moderate but potentially significant impacts to soil, vegetation, and water quality could result if recovered water or sediment contaminated by recovered water were to move off the right-of-way or if PPL's pipelines or North Plant Pond C were to leak. Under the Proposed Action with Additional Mitigations Alternative additional actions would be taken to detect and limit pipeline and pond leakage. The risk of significant impacts would be substantially reduced.

29. Cumulative Effects: Cumulative effects including impacts from used of recovered water and highway reconstruction include adverse impacts to soil, vegetation, and water quality as described above. Cumulative beneficial impacts to employment, tax base, and industrial activities would occur.

Recommendation for Further Environmental Analysis:

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

Determination: The Department finds and determines that the proposed amendment would affect a new area not addressed in the original environmental impact statement and Certificate.

The Department recognizes the intent and benefits of using recovered water for dust suppression, compaction and surfacing on the Highway 39 project. However, the Department has concerns about leakage from the contractor's pipeline carrying recovered water from North Pond C to temporary ponds along the highway, storm water runoff, unintentional accumulation of minerals on adjacent private land, and potential cleanup liabilities that adjacent landowners may have. The Department's recommendation is to adopt the Proposed Action with Additional Mitigations Alternative as described above. For this determination to become effective DEQ must issue an order and PPL must agree in writing to the terms and conditions contained in the amendment.

EA Checklist Prepared By: Tom Ring, Scott Fisher, Jackie Windon, and Warren McCullough

Approved By:

_____ _____

Signature Date